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ABSTRACT

A follow-up study examined the long-term effects associated with receiving formal reading instruction in kindergarten. Subjects, 3,959 high school seniors from 24 school districts in 10 states, were part of the Beginning Reading Program (BRP) during the 1973-74 school year. The BRP originally included over 200 elementary schools and over 5,000 kindergarten classrooms. Subjects were introduced to and taught reading skills using systematically developed materials and instructional procedures. Subjects in the follow-up study completed a norm-referenced reading test, a specially designed reading vocabulary test, and "The Reading Biographer" (which assessed a host of other educational indicators and related factors). Results indicated that students who learned to read in kindergarten (about half of those in the program) were superior in reading skills and on educational indicators than students not in the BRP. The results were consistent across school districts, racial/ethnic groups, gender, and socioeconomic groups. (One table of data is included.) (RS)

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THE LONG-TERM EFFECTS OF LEARNING TO READ IN KINDERGARTEN: A TWELVE YEAR FOLLOW-UP STUDY[1]

Ralph A. Hanson and Donna Farrell Siegel

SUMMARY

When, how, and to whom formal reading instruction should be provided are central issues of continuing controversy in education. This study examined these issues using extensive and unique data sources resulting from a longitudinal research effort spanning nearly twenty years. Specifically, this study sought to answer two questions: (1) Are there any long-term effects associated with receiving formal reading instruction in kindergarten? and (2) Are there any special effects for disadvantaged students of receiving this instruction?

To obtain answers to these questions, special instruments were developed and administered to 3,959 students from 24 school districts in ten states in the spring of 1986. These districts were part of an original set of 430 school districts (including approximately 2000 elementary schools and 5000 kindergarten classes) which implemented the Beginning Reading Program (BRP) during the 1973-74 school year with the support of Title III funding. This Program was developed between 1965 and 1971 by a regional educational laboratory and embodied many unique and innovative features. Among these were carefully researched content specifications which resulted in the optimal sequencing and presentation of the critical sounds and words needed to gain initial basic sight vocabulary. In this way, the children were able to read simple stories after only one week of instruction.

[1]See Hanson, R., and Siegel, D. F. (1988) for complete information and the full results of this research.

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These reading skills were introduced and taught using systematically developed materials and instructional procedures. The instruction included group flashcard lessons, playing simple games, and reading from a set of 52 consumable (paperback) story books. Each book contained a short story illustrated with a series of animal characters capitalizing on preschoolers' natural interest in animation. Each child was provided with a full set of these 52 books. After the children read them aloud in class, the books could be taken home; this allowed for additional practice and increased parental involvement.

Throughout instruction emphasis was placed on encouraging each child to participate as he or she was ready and ensuring that all efforts, including non-responses, were positively received by the teacher. Special teacher training sessions emphasizing positive reinforcement, a lot of practice, and full participation by all students were carried out in each district prior to the use of the program. Obtaining responses from each child and a brief evaluation after each of the ten units of instruction provided the means for teachers to confirm that the children had acquired initial reading skills. For those having difficulties, additional individual instruction on each specific skill was recommended and special materials were provided.

The progress of each class, school, and district which participated in this national implementation of the BRP in 1973-74 was monitored and evaluated on the basis of extensive data gathered throughout the school year. These data were summarized and reported to the federal government as part of the Title III project evaluation requirement. The data were also extensively analyzed for policy implications and the results were reported in a series of technical reports, professional papers, and articles (e.g., Hanson and Schutz, 1978).

While these inquiries had many important research implications, the most substantive finding was that virtually all kindergarten students could be taught to read using this Program. These studies indicated that kindergarten students could learn to read quite

well when teachers would devote about 25 minutes per day over a period of 25 school weeks to the reading instruction Program.

This did not mean, of course, that all teachers fully implemented the Program. There were considerable differences in the number of BRP units completed by each school. Futhermore, these implementation differences were were found to be related to students' reading abilities at the end of their kindergarten year (e.g. Hanson and Schutz, 1978). Thus, the findings confirmed that the differences in the number of BRP units completed by each school were related to the amount of time (instructional weeks) the school devoted to BRP instruction and not to the measurable characteristics of children, such as their language skills upon entering kindergarten. The only distinction between children from the most advantaged as compared to those from the least advantaged backgrounds was that, on average, slightly more time was expended to complete the first unit of the Program. After completion of that first unit, the pattern of both instructional time requirements and achievement were identical for all classes.

While these results were important, they did not address the most serious criticism of teaching children under six years of age to read: that it would have a serious, deleterious impact on both their attitudes toward and skills in reading at a later point in time. This proposition dates back to a heavily criticized study from the 1930's (i.e., Morphett & Washburn, 1931). This fifty-seven year old study is still the major research cited in early childhood education texts to support the notion for not teaching reading before the age of six. It was a new, more thorough examination of this old proposition, that the Kindergarten Follow-Up Study (KFS) sought to provide.

In obtaining data from high school seniors, three instruments were employed. A norm-referenced reading test and a specially designed reading vocabulary test provided detailed information on their current reading ability. A third instrument, referred to as *The Reading Biographer*, assessed a host of other educational indicators and related factors

such as: (1) family background, (2) grades and educational experiences (from preschool through high school), and (3) current interests, educational plans, and leisure activities. *The Reading Biographer* also obtained the names of each school the students attended. All instruments were carefully developed, pilot tested, and revised several times in the year preceding their use in this research.

Approximately half of the 3,959 students in the follow-up study had learned to read in kindergarten. They represented 127 of the original set of 2,000 elementary schools that implemented the BRP in 1973-74. Specific data, such as how many BRP units students completed and a summary of their tested reading skills at the completion of kindergarten, were combined with the follow-up data for the analyses presented in this research (See Hanson and Siegel, 1988) for full details on study procedures and data analyses).

Briefly, these analyses centered around two designs: (1) a school-level design which examined and compared mean reading score differences between schools which implemented some of the kindergarten BRP (i.e., 1-7 units) with those implementing most or all of the BRP (i.e., 8-10 units), and (2) a student-level design which examined and compared the mean reading score differences between students who had and had not participated in the kindergarten reading program. In both designs, differences on many follow-up variables were evaluated. These variables included: (1) current reading and vocabulary skills, (2) interest in, attitudes toward, and daily amount of reading, and (3) schooling variables such as the number of remedial or honors classes, current grades and coursework, and average yearly attendance.

The analyses within both designs showed clear and consistent support for teaching reading in kindergarten. Participation in a systematically developed and carefully implemented kindergarten reading program was related, not only to higher reading skills, but to higher performance on all indicators of reading competency. Further, students from

schools completing more of the Program were better readers as high school seniors when compared to those from schools completing only a portion of the program. In comparing the kindergarten reading students to other students in their same district who did not receive any kindergarten reading instruction, the results were even more conclusive. Learning to read in kindergarten was not only related to higher reading skills but it reduced the need for remediation at both the elementary and high school levels. Students receiving the kindergarten reading instruction fared better in all ways than those who did not receive the instruction; these results were consistent across districts, and by racial/ethnic, gender, and socioeconomic groups. In all comparisons, the kindergarten reading students emerged as better off than those who did not receive the instruction.

These conclusions are based on extensive data analyses reported in Hanson and Siegel (1988); only one table will be presented here. Table 1 shows the practical as well as the statistical results by presenting data on one global measure of adult literacy (defined as reading at or below the fifth grade level as a senior in high school). This variable is based on the reading stages defined by Jeanne Chall and is derived by using both the reading vocabulary and comprehension test scores. The entries in this table show the percentage of students in each category who were reading at or below the 5th grade level as seniors in high school; these data are given by ethnic/race, gender, and social class groups. These results show quite clearly that the students who learned to read in kindergarten fared better in all groups than those who did not. Depending on the specific group, these differences varied in range from 2% to as much as 16%. Note, however, that the results for each group consistently favor the kindergarten readers. As the table indicates, overall there were about 8% fewer of these poor readers among students who had the kindergarten reading program as compared to those who did not.

Table 1. Percent of students in each kindergarten experience comparison category that can be classified as functionally illiterate as seniors in high school (i.e., reading at or below the 5th grade level)

Biosocial Variables	No BRP/ No BRP School 1	No BRP/ BRP School 2	BRP/ BRP School 3	Overall %
Ethnic Background				
Asian	13	10	01	9
Black	44	39	28	37
Hispanic	35	31	26	31
Native American	20	22	18	20
Others	8	8	6	7
Gender				
Female	15	17	11	14
Male	18	18	11	15
Socioeconomic Status				
Low	21	25	14	19
Medium	18	16	11	15
High	7	10	5	7
Overall	17	18	11	15

These data are further illustrated in Figure 1.:

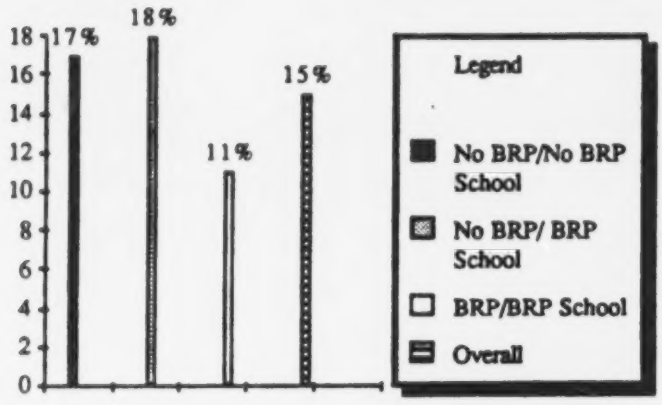

Figure 1. Percent of students in each kindergarten experience comparison category that can be classified as functionally illiterate as seniors in high school (i.e., reading at or below the 5th grade level)

Couple these results with the fact that the schools which taught reading in kindergarten included more students from disadvantaged backgrounds (lower SES) and these results are even more convincing. For these students to be even comparable to higher SES groups which did not receive kindergarten reading would be a significant accomplishment. The fact that they read better and there were substantially fewer students in the functional illiterate category is extraordinary.

It should be noted that such convincing evidence favoring kindergarten reading instruction was totally unexpected. In the original grant proposal, the expectation was that the early reading experience might show some positive long-term impact among disadvantaged groups. This modest expectation was in direct contrast to the prevailing notions of early childhood specialists who have cautioned against providing formal reading instruction to children prior to the age of 6 for fear of the long-term negative effects it would have on their reading skills and attitudes.

This study clearly turns this long-standing educational maxim into a myth. Not only did the disadvantaged students benefit from the kindergarten reading instruction, but

so did the advantaged groups. Perhaps even more astounding is the fact that, collectively, the high school seniors who participated in the kindergarten reading program were from lower socioeconomic groups than those who did not. This was consistent with the earlier evaluations of the kindergarten reading installations which showed that most districts placed the program in schools with the lowest reading levels... those that typically served disadvantaged populations. Thus, inspite of an overall lower SES level, the students who received the kindergarten reading program still outperformed the higher SES students who did not! When was the last time anyone saw test results showing a lower SES group outperforming a higher SES group on a norm-referenced test of reading achievement? Further, when have you seen such significant differences directly linked to an educational intervention provided by schools?

The major findings of this research can be stated in a single sentence: **the students who learned to read in kindergarten were found to be superior in reading skills and on all educational indicators as seniors in high school**. Further, there was absolutely no evidence of any negative effects and, hence, no support for the argument that early reading instruction might associated with negative long-term effects. The national policy implications of this research is that support for efforts by schools to implement formal reading instruction at the kindergarten level should be provided in a manner consistent with the methodology and instructional strategies of the Beginning Reading Program.

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